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Studies on the Rocky Mountain flora—XXVI

PER AXEL RYDBERG

PINACEAE and JUNIPERACEAE

In the New Manual of Botany of the Central Rocky Mountains no reference is made to *Picea canadensis*, although it has been collected in the Black Hills of South Dakota and Wyoming. Blankinship in his supplement to the Flora of Montana,* reports *P. alba*, which is the same, from four localities in Montana. This, however, I think is erroneous. All specimens from Alberta, British Columbia, and Montana, that I have seen determined as *P. canadensis* or *P. alba*, belong to *P. albertiana* S. Brown. Probably the specimens reported by Blankinship belong there also. *Abies grandis* is also omitted in the New Manual. This is not uncommon in Montana west of the continental divide. Perhaps that part of the state is not intended to be included in the range covered by the New Manual, as it includes only "most of Montana." The species has been reported from the Yellowstone Park, but the reference is uncertain. Blankinship, loc. cit., also reports *Juniperus virginiana* from Montana and cites three localities. I have no evidence that the determinations were correct nor have I seen any specimens from the state. What makes me more doubtful as to the correctness of the determination is that two of the localities are situated west of the continental divide, and at Bozeman, the third locality, I have myself collected during parts of three summers and have not seen it.

I doubt very much if *Juniperus Knightii* A. Nelson can be upheld as a species distinct from *J. utahensis* (Engelm.) Lemmon. The characters given, apparently do not hold. The leaves are supposed to be 2-ranked in *J. monosperma* and *J. utahensis* and 3-ranked in *J. Knightii*. I know that in the first two they are both 2- and 3-ranked. I have not seen the type of *J. Knightii*, but in a specimen distributed under that name by Professor Nelson

* Montana Agr. Coll. Sci. Stud. Bot. 1: 39. 1905.

himself the leaves are both 2- and 3-ranked on different twigs of the same branch. The seeds in *J. utahensis* are either obtuse or acutish at the apex, and these characters do not furnish any distinction. I have spoken to Dr. J. A. Shafer, who helped Dr. N. L. Britton in preparing North American Trees, and he told me that he had come to exactly the same conclusion as I.

The following two changes in the nomenclature seem to be advisable.

Hesperopeuce Mertensiana (Bong.) Rydb. comb. nov.

Pinus Mertensiana Bong. Mem. Acad. Sci. Nat. St. Petersb. VI. 2: 163. 1832.

Abies Mertensiana Lindl. & Gord. Journ. Hort. Soc. Lond. 5: 211. 1850.

Abies Pattoniana Jeffrey; A. Murray, Rep. Oregon Exped. 1. 1853.

Tsuga Pattoniana Sénéc. Conif. 21. 1867.

Hesperopeuce Pattoniana Lemmon, Rep. Calif. State Board Forestry 3: 126. 1890.

Tsuga Mertensiana Sargent, Silva 12: 77. 1898. Not *T. Mertensiana* Carrière, 1867.

I agree fully with Mr. Lemmon that this species should be removed from *Tsuga*. Both its cones and its leaves are more like those of a spruce than those of a hemlock, and the habit of the tree is different from both. Mr. Lemmon, however, did not adopt the oldest available specific name.

Sabina horizontalis (Moench) Rydb. comb. nov.

Juniperus horizontalis Moench, Meth. 699. 1794.

Juniperus prostrata Pers. Syn. 2: 632. 1807.

Juniperus Sabina procumbens Pursh, Fl. Am. Sept. 647. 1814.

Sabina prostrata Antoine, Cupress. Gatt. 57. 1857-70.

EPHEDRACEAE

Marcus E. Jones* reduced *Ephedra viridis* Coville to a variety of *E. nevadensis*. I do not know exactly what *E. viridis* is, as I have not seen the type, but the Utah plant which Jones had in mind, does not seem to agree with the description. We have duplicates of some of the numbers cited by Jones, and these seem to be typical *E. nevadensis*.

* Proc. Calif. Acad. II. 5: 726. 1895.

SPARGANIACEAE

Sparganium simplex L. has been reported again and again from the Rocky Mountains, but all the specimens I have seen under that name belong either to *S. longipedunculatum* (Morong) Rydberg or to *S. angustifolium* Michx. *S. longipedunculatum* resembles *S. simplex* much in habit but is usually more slender, and the leaves are not so triangular-keeled as in that species. The main difference is, however, in the shorter style and stigma. *S. simplex* is very rare in the United States. I have seen specimens only from the State of Washington. It is otherwise found in British Columbia and along the St. Lawrence River in Ontario and Quebec.

ZANNICHELLIACEAE

Potamogeton perfoliatus is not found in the Rocky Mountain region. It is there represented by *P. Richardsonianus*. Notwithstanding the fact that N. Taylor includes the latter in the former, I am convinced that they are distinct. This opinion is based on field studies. My contentions are also supported by M. L. Fernald.

I cannot find any specific distinctions between *Ruppia curvica* A. Nels. and *R. maritima* L. The length of the pedicels is merely a matter of age and other conditions; the typical *R. maritima* has strongly oblique fruit, gibbous at the base as described in *R. curvica*; slender or stout, straight and curved styles are found in the same individual even. Taylor, also, could find no distinctive characters.

ALISMACEAE

Alisma Plantago-aquatica L. is not found in America. In this European species the achenes have different beaks from those found in the North American species. The common species of the Rocky Mountain region should be known as *A. brevipes* Greene. *Alisma Geyeri* Torr. is also found in the regions. (See my Flora of Montana.) It has been collected later in Utah.

Blankinship* described one new species and one new variety of *Sagittaria*. *S. paniculata* Blank. is but a well developed *S.*

* Loc. cit. 40.

arifolia Nutt.,* and *S. arifolia tenuior* is but a depauperate form of the same. Both *S. paniculata* Blank. and *S. arifolia* Nutt. have to give way for the older name *S. cuneata* Sheldon,† which was described from the deep-water form of the same species.

POACEAE

Blankinship reported *Panicum nitidum* Lam. from Columbia Falls, Montana. This must be an error, for that species is known only from the eastern seaboard from southern Virginia to eastern Texas. *Aristida fasciculata Hookeri* of Blankinship's list is the same as *A. longiseta*.

Professor Nelson reports *Aristida oligantha* from Colorado. I have seen no specimens from that state and none from west of central Nebraska. Perhaps *A. bromoides* might have been mistaken for it.

The oldest available specific name for *Eriocoma cuspidata* is *hymenoides*, which is therefore adopted, and its name and synonymy is as follows:

***Eriocoma hymenoides* (R. & S.) Rydb. comb. nov.**

Stipa membranacea Pursh, Fl. Am. Sept. 728. 1814. Not *S. membranacea* L. 1753.

Stipa hymenoides R. & S. Syst. 2: 339. 1817.

Eriocoma cuspidata Nutt. Gen. 1: 40. 1818.

Oryzopsis cuspidata Benth.; Vasey, Special Rep. U. S. Dept. Agr. 63: 23. 1883.

The following species of *Muhlenbergia* should be added to the flora of the Rocky Mountain region: *M. pauciflora* Buckl. (*M. neomexicana* Vasey; *M. Pringlei* Scribn.), *M. polycaulis* Scribn., and *M. curtifolia* Scribn., which were collected by Professor A. O. Garrett and myself in southeastern Utah last summer. *Alopecurus fulvus* Smith is not found in America, except perhaps in Greenland. *A. aristulatus* Michx. is not the same, differing not only in the general habit, not being depressed-geniculate, but also in the different position of the awn of the floral glume. *Alopecurus pallescens* Piper has been collected in both Idaho and Montana.

* J. G. Smith. Rep. Missouri Bot. Gard. 6: 32. 1894.

† Bull. Torrey Club 20: 283. 1893.

Professor Nelson, in the New Manual, includes *Sporobolus vaginaefolius* and *Cinna arundinacea*, which I think are erroneously reported for the region.

The following species of *Calamagrostis* have to be included in the Rocky Mountain flora: *C. Vaseyi* in Montana, *C. rubescens* and *C. lucida* in Wyoming.

Professor Nelson reduced *Avena americana* to a synonym of *A. Mortoniana*. I think they are distinct, but if united, they should bear the name *Avena Hookeriana*, an older name for the former. *Arrhenatherum elatius* has been collected in Colorado, and *Danthonia spicata* is common in the Black Hills.

***Deschampsia pungens* sp. nov.**

A densely tufted perennial; stem 3-4 dm. high, glabrous and shining; basal leaves numerous, the old subchartaceous sheaths from preceding season remaining, strongly striate, glabrous, often slightly tinged with purplish; ligules triangular-lanceolate, 4-5 mm. long; blades spreading, more or less arcuate, strongly involute, bluish green or in age straw-colored, strongly striate, minutely scabrous-pruinose, stiff and with a callous pungent point; stem leaves few; blades 2-5 cm. long, similar; panicle open, branches in age spreading; peduncle and its branches more or less purplish, glabrous or minutely scabrous; empty glumes subequal, 3.5-4.5 mm. long, lanceolate, acute, purple, with scarious margins; rachis long-hairy; floral glumes 3-3.5 mm. long, similar to the empty glumes; awn attached near the base, equaling or barely exceeding the floral glume.

This species is closely related to *D. caespitosa* but differs in the stiff, involute, pungent-pointed leaves and in the position of the dorsal awn of the floral glumes. This is attached near the base of the glume, while in *D. caespitosa* it is attached one fourth or one fifth the distance from the base. It grows near hot springs.

ALBERTA: Along stream below warm sulphur springs, vicinity of Banff, July 10, 1899, *McCalla 2309* (type in herb. N. Y. Bot. Gard.).

WYOMING: Lower Geyser Basin, Yellowstone Park, August 4, 1897, *Rydberg & Bessey 3590*.

Chloris brevispica Nash has been collected at Wray, Colorado, and *Blepharidachne Kingii* (S. Wats.) Hackel (*Eremochloa Kingii*

S. Wats.) in eastern Utah, *Eragrostis lutescens* Scribn. and *E. hypnoides* Nees in Idaho, *E. secundiflora* Presl in Colorado, and *E. neomexicana* Vasey in southern Utah. *Briza maxima* L. has become introduced in Colorado.

Poa Multnomae Piper and *P. ampla* Merrill have been collected in Montana since 1909. *Poa flava* L. is not a *Poa* at all, as shown by Professor A. S. Hitchcock, and the name to be used for *P. serotina* Ehrh. is *P. triflora* Gilib. *Poa laxa* Haenke is not found in the Rocky Mountains, and what has been masquerading under that name is *P. alpicola* Nash. *Poa paddensis* Piper is an older name for *P. subpurpurea* Rydb., both being based on *P. purpurascens* Vasey. In the New Manual no reason is given why *P. Buckleyana* Nash, published in 1895, should be used instead of *P. Sandbergii* Vasey of 1893. They may be the same. *P. Buckleyana* Nash was a substitute for the untenable *P. tenuifolia* Buckl., while *P. Sandbergii* was described independently. I have not seen Buckley's type, but it is supposed to have been based upon the manuscript *P. tenuifolia* Nutt. Dr. A. Gray accused Buckley of having pilfered the species from Nuttall. There is in the herbarium of the New York Botanical Garden a specimen named by Nuttall *P. tenuifolia*, and this specimen belongs to *P. Sandbergii*. What has usually passed under the names *P. tenuifolia* and *P. Buckleyana* is different, and I think represents a distinct although closely related species. The grass common in Wyoming and Colorado belongs to this and not to the typical *P. Sandbergii*, which ranges only west of the continental divide.

Although *Poa pseudopratensis* Scribn. & Rydb. resembles the common bluegrass in habit it is entirely distinct from it and more closely related to *P. arida* Vasey. Like that species it lacks the cobweb at the base of the floral glumes altogether, while *P. pratensis* has the best developed cobweb of all our species. Likewise *P. phoenicea* Rydb., also cited as a synonym under *P. pratensis* in the New Manual, has no cobweb and belongs in another section of the genus. I am inclined to think that *P. phoenicea* Rydb. is the same as the original *P. Grayana* Vasey, while *P. Grayana* of my Flora of Colorado is a large-flowered *P. Pattersonii* or a closely related species.

Poa crocata Michx. is the same as *P. caesia strictior*. In the

Torrey Herbarium there are a few spikelets of *P. crocata* Michx., and I have seen the type of *P. caesia strictior*. The plant is the most common species that has been known under the name *P. nemoralis* in the Rockies. It is intermediate between *P. interior* Rydb. and *P. rupicola* Nash, in habit resembling more the latter, but the cobweb is present.

In the New Manual of Botany of the Central Rocky Mountains, *Poa Tracyi* Vasey, *P. flexuosa occidentalis* Vasey, *P. occidentalis* Rydb., and *P. callichroa* Rydb. are given as synonyms under *P. nervosa* (Hook.) Vasey. In *P. callichroa* the cobweb is present, and that species is related to *P. arctica* although much larger. In the rest the cobweb is wanting. The plant described by Professor Nelson is *P. occidentalis* (Vasey) Rydb. If *P. Tracyi* Vasey is the same I do not know, but *P. nervosa* (Hook.) Vasey is a different plant. A duplicate of the type is in the Torrey Herbarium. In this species the glumes are very thin and the nerves very prominent, stronger than in any other species of *Poa* known to me.

Poa californica, *P. andina* Nutt., and *P. brevipaniculata* S. & W. are given as synonyms under *P. Fendleriana*. *Poa brevipaniculata* is very hard to distinguish from *P. Fendleriana* and may well be reduced to synonymy. *Poa californica*, under which name *P. Fendleriana* has been masquerading and under which it is described in the old Coulter's Manual, is an entirely different plant, related to *P. nevadensis* and *P. Buckleyana* and not found in the Rocky Mountain region. *P. andina* Nutt. is also entirely distinct. *P. arida* Vasey and *P. pratericola* Rydb. & Nash were based on *P. andina* Nutt. These two as well as *P. juncifolia* Scribn. are cited by Nelson as synonyms under *P. Sheldonii* Vasey. *P. arida* and *P. Sheldonii* are closely related to each other but *P. juncifolia* is more closely related to *P. laevigata*.

In *Festuca* the following species have been collected in the Rocky Mountains: *F. pacifica* in Utah and Idaho, *F. reflexa* in Utah, *F. megalura* in Idaho, *F. ovina calligera* Piper in Utah, *P. idahoensis* Piper in Idaho, *F. viridula* Vasey in Idaho, and *F. dasyclada* in Utah. *Festuca Thurberi* is one of the best species in the genus, characterized by its long acuminate ligules. It stands in the same relationship to *F. campestris* and *F. scabrella*, as *Poa longiligula* does to *Poa Fendleriana* and *P. brevipaniculata*.

I regard the subgenus *Hesperochloa* of *Festuca*, proposed by Piper, as representing a distinct genus and here propose it as such.

HESPEROCHLOA (Piper) Rydb. gen. nov.

Festuca subgenus *Hesperochloa* Piper, Contr. U. S. Nat. Herb. 10: 10. 1906.

Densely tufted dioecious perennial, occasionally stoloniferous. Inflorescence a narrow panicle. Spikelets turgid, 3-5-flowered; rachilla scabrous on the basal half. Empty glumes 2, broadly lanceolate, subscarious, shining, the lower 1-nerved, the upper 3-nerved. Floral glumes ovate, acuminate, rounded on the back, faintly nerved. Petals scabrous-ciliate on the keels. Styles obsolete; stigmas hispidulous on all sides, not plumose; ovary deeply sulcate near the apex, sparsely hispidulous; grain beaked and bidentate at the apex.

Hesperochloa Kingii (S. Wats.) Rydb. comb. nov.

Poa (?) *Kingii* S. Wats. Bot. King Exped. 387. 1871.

Festuca confinis Vasey, Bull. Torrey Club 11: 126. 1884.

Festuca Kingii Scribn. U. S. Dept. Agr. Agrost. Bull. 5: 36. 1897.

Not *Festuca Kingiana* (Endl.) Steud. 1855.

Festuca Watsonii Nash, Britt. Man. 148. 1901.

This was originally described as a doubtful *Poa* and afterwards transferred to *Festuca* because the floral glumes are rounded on the back. There are, however, certain characters in the stigmas and the grains that make it fit poorly in either genus. In both *Poa* and *Festuca* the stigmas are plumose, that is, the branches are spreading bilaterally, while in *Hesperochloa* the short bristlelike branches stand out in all directions, a condition rather rare among the grasses.

Hordeum caespitosum Scribn. is found locally throughout the range, *H. montanense* was described from Montana, *H. murinum* and *H. Aegiceras* have been introduced and are locally established especially in Utah.

Sitanion Raf. is a very perplexing genus, and it is very doubtful if the many species proposed by J. G. Smith can be upheld. It is evident that *S. longifolium* and *S. brevifolium* are but local forms of one species, depending on the amount of moisture. As this species is the only one found anywhere near the type locality of

S. elymoides Raf., I think that the latter name should supplant the other two. *S. lanceolatum* J. G. Smith from Montana and *S. marginatum* Scribn. & Merrill from Wyoming are the two species of the range best differentiated and seem to connect the genus with *Elymus*. *S. insulare* was described from north-eastern Utah, and *S. ciliatum* has been collected in Wyoming.

ARACEAE

This family is omitted altogether in the New Manual, although *Acorus Calamus* is recorded in my Flora of Colorado and *Lysichiton camtschatcense* (L.) Schott in my Flora of Montana. The former has also been collected in Montana by Butler.

LEMNACEAE

Lemna perpusilla Torr. is included by Nelson in his Manual with the remarks: "Frequent; northern Wyoming to New York." So far as I know this is wholly an eastern species. Specimens so labeled from the Rockies, which have come under my observation, are *L. minor*, *L. minima*, or *L. cyclostasa*, which all have been confused with it.

COMMELINACEAE

Professor Nelson admits two species of *Tradescantia* and gives the following key:

Freely branched; filaments folded; ovary pubescent in riblike lines. 1. *T. laramiensis*.
Simple; filaments straight; ovary pubescent at the apex. 2. *T. occidentalis*.

If these characters hold, as to separating the two species known to Professor Nelson, the second one is not *T. occidentalis*, for the specimen designated by Dr. Britton as the type of *Tradescantia virginica occidentalis*, viz., Rydberg 1380, from Thedford, Nebraska, has a branched stem and an ovary pubescent not only at the apex but almost to the base. It is not exactly like the type of *T. laramiensis*, however, for the lateral branches are shorter than the stem proper, the sepals are broader, the leaves broader, and the plant more glandular. In *T. laramiensis* the lateral branches about equal the stem, giving the plant a flat top. If these are specific characters, I do not know. If the two species of the New Manual are distinct, the second one should bear the name *T. universitatis* Cockerell, for it was this form that Professor Cockerell described.

Under the second species is given the following synonym and remark: “(*T. scopulorum* Rose, Contr. U. S. Nat. Herb. 5: 205. 1899, as to the specimens from Colorado and northward).” This would have been correct if the word “mainly” had been inserted, for I have seen at least one specimen from Colorado that I refer without hesitation to *T. scopulorum*.* The latter differs from the other species of the region by its glabrous or nearly glabrous sepals, its smaller petals, only 10 mm. long, and its subglobose capsule. There is also another species, which should have been included, viz., *T. bracteata* Small, the type of which was from the Black Hills.

MELANTHACEAE

Tofieldia occidentalis S. Wats. has been collected in Idaho; *T. coccinea* Richards. in the Canadian Rockies; *Stenanthella occidentalis* and *Veratrum Eschscholtzianum* in Montana and Idaho.

To me both *Zygadenus dilatatus* Greene and *Z. alpinus* Blankinship seem to be but synonyms of *Z. elegans* Pursh or *Anticlea elegans* Rydb. *Anticlea porrifolia* (Greene) Rydberg (*Zygadenus porrifolius* Greene) was collected last summer in southeastern Utah. So also an undescribed species:

Anticlea vaginata sp. nov.

Perennial, growing in big clumps; cormlike rootstock fully 2 cm. thick; stem 7–10 dm. high, at the base covered with numerous scarious sheaths; leaf blades linear, 3–7 dm. long, 6–10 mm. wide, with numerous veins; inflorescence paniculate, branched; lower bracts linear or subulate, 3–6 cm. long, green, the upper ones ovate, 5–10 mm. long, white; pedicels 5–10 mm. long, often recurved; petals and sepals white, elliptic, obtuse, 7–8 mm. long, usually 7-nerved, the former sometimes a little longer than the latter; filaments linear-subulate, broad at the base, white, slightly shorter than the sepals; anthers nearly round; styles slightly exceeding the perianth, curved.

This differs from the other species of *Anticlea* in its habit of growing in big clumps, and in its numerous loose sheaths at the base of the stem. In the perianth segments it resembles *A. coloradensis*, and *A. porrifolia* in the few veins, the segments are smaller than in the former and broader than in the latter. It resembles

* Garrett and myself collected it also in southeastern Utah last summer.

also *A. porrifolia* in the branched inflorescence but has shorter pedicels and broader leaves. *A. vaginata* grew in loose rich soil under overhanging canyon walls.

UTAH: Armstrong Canyon, near the Natural Bridges, August 4-6, 1911, *Rydberg & Garrett 9407* (type in herb. N. Y. Bot. Gard.).

Professor Nelson gives *Zygadenus gramineus* Rydb. as a synonym of *Z. venenosus* S. Wats. It is evidently *Z. gramineus* he described, although some modification was made. *Z. venenosus* is not found in Wyoming, the most eastern stations known are in the Snake River Valley of western Idaho. It is characterized by the long-clawed petals and sepals and the thick gland. Professor Piper, some years ago, criticized me for redescribing *Z. venenosus*. I think he referred to *Z. intermedius* Rydb. After some arguments on both sides he said that he would look up Watson's type. I do not know that he did, but evidently he came to the same conclusion as I, for in his *Flora of Washington** he limited the range of *Z. venenosus* to "British Columbia to California" and hence excluded the Rockies. I have also been criticized for the same thing by Mr. M. E. Jones. Mr. Jones† remarked: "Part of his type of *Zygadenus intermedius* is my No. 2091 from Farmington, Utah. These specimens have no distinct sheath to any of the leaves, except the basal ones. . . . This is a fair sample of Rydberg's accuracy in dealing with *Zygadenus*. . . ." Turning to my original paper,‡ one may see that *J. H. Sandberg 10564* is expressly designated as the type and not *Jones 2091*, which I included in the species. I do not know what Mr. Jones' own specimens show, but there are two of Jones' specimens from Farmington distributed under the number 2091 in the Columbia University herbarium and in these even the upper leaves show short sheaths. One leaf attached near the middle of the stem shows a sheath 1.5 cm. long. I do not think that the presence or absence of a sheath on the upper part is a specific character, but this as well as the citing of a wrong type shows that Mr. Jones is not more accurate than I am.

For my part, I think that *Z. gramineus* can not be upheld as a

* Contr. U. S. Nat. Herb. 11: 198. 1906.

† Contr. West. Bot. 12: 77. 26 Mr 1908.

‡ Bull. Torrey Club 27: 536. 1900.

species distinct from *Z. intermedius*, being a dry hill state of the same with smaller flowers and narrower leaves. *Z. falcatus* Rydb., which Nelson reduced to a synonym, I think is perfectly distinct and nearer related to *Z. paniculatus*. It is what has been known as *Z. Nuttallii* from Colorado. The latter is not found in the range and should have been excluded.

I have here used the name *Zygadenus*, as the species were first described under that name. I have shown that this name belongs to *Z. glaberrimus* and that the plants here discussed should be known as *Toxicoscordion*.

JUNCACEAE

The following species of *Juncus* are found in the Rockies: *Juncus uncialis* Greene, *J. Jonesii* Rydb., *J. Regelii* Buch., *J. Tracyi* Rydb., and *J. mexicanus* in Utah; *J. columbianus* Coville and *J. Regelii* Buch. in Montana; and *J. arizonicus* in Colorado. Professor Nelson includes Colorado in the range of *J. ensifolius* Wikstr. I have seen no specimens of it from that state. The best character, beside the difference in the number of stamens, by which one can distinguish this from *J. saximontanus*, is that the scarious margin of the leaf sheaths in the latter ends in a small auricle, while in *J. ensifolius* the margin gradually diminishes and disappears in the blade.

ALLIACEAE

DIPTEROSTEMON gen. nov.

Plants with fibrous-coated bulbs, few basal elongated narrow leaves and naked scapes. Flowers in subcapitate umbels; bracts 3-5, membranous, colored, usually purple; perianth funnelform or campanulate, purple; segments united about half their length; lobes elliptic, ascending; stamens six; filaments subulate, adnate to the tube, becoming distinct at the throat; those opposite the sepals naked; those opposite the petals at the base with two lanceolate wings or lobes, surpassing the anthers; anthers basifixed; capsule ovate, 3-locular; cells many-seeded.

Some of the species formerly included in *Brodiaea* and lately in *Dichelostemma* differ from the rest enough, I think, to deserve generic rank. The type of *Brodiaea* is *B. grandiflora* Smith. This is the same as *Hookera coronaria* Salisb., published a few

months earlier. As the latter is the type of *Hookera*, *Brodiaea* becomes a pure synonym. Dr. Greene,* who was the first to segregate into genera the members of *Brodiaea* taken in the sense of Dr. Watson, retains both genera. Evidently he regarded Smith's second species, *Brodiaea congesta*, as the type. This can scarcely be done, as *B. grandiflora* is not only the first species, but it is more extensively described and discussed. Greene himself afterwards discarded *Brodiaea* and adopted *Dichelostemma*, proposed by Kunth on *Brodiaea congesta* Smith. Alphonso Wood had extended Kunth's genus to include also *B. capitata* Benth. and *B. volubilis* Baker (*Stropholirion californicum* Torr.). Wood was followed by Greene in including these species in the genus. *Stropholirion* has been generally recognized as a genus, even by S. Watson. The typical species of *Dichelostemma*, i. e., *D. congesta* (Smith) Kunth and its relative *D. multiflora* (Benth.) Heller, have only 3 stamens alternating with 3 staminodia and differ from the typical species of *Hookera* only in the rounded base of the perianth and the subcapitate inflorescence. If they are kept distinct then *Seubertia* should be regarded distinct from *Triteleia*. *Brodiaea capitata* has 6 fertile stamens with subulate filaments. At the base of each of the inner three there are two lanceolate lobes partly adnate to the perianth, forming together a crown of 6 instead of 3 members. To the new genus proposed here, belong:

Dipterostemon capitatus (Benth.)

Brodiaea capitata Benth. Pl. Hartw. 339. 1857.

Dipterostemon pauciflorus (Torr.)

Brodiaea capitata pauciflora Torr. Bot. Mex. Bound. Surv. 218. 1859.

Dipterostemon insularis (Greene)

Brodiaea insularis Greene, Bull. Calif. Acad. Sci. 2: 134. 1887.

Dipterostemon pulchellus (Salisb.)

Hookera pulchella Salisb. Parad. 2: pl. 117. 1808.

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* Bull. Calif. Acad. Sci. 2: 125-144. 1886.